UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/159,442	09/24/1998	ELWOOD G. NORRIS	T7029	5130

20444 7590 09/21/2006

VAUGHN W NORTH
THORPE NORTH WESTERN
P O BOX 1219
SANDY, UT 840911219

EXAMINER	
LEE, PING	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary for Applications Under Accelerated Examination	Application No.	Applicant(s)	
	09/159,442	NORRIS ET AL.	
	Examiner	Art Unit	
	Ping Lee	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Since this application has been granted special status under the accelerated examination program,

NO extensions of time under 37 CFR 1.136(a) will be permitted and a SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE:

ONE MONTH OR THIRTY (30) DAYS, WHICHEVER IS LONGER,
FROM THE MAILING DATE OF THIS COMMUNICATION – if this is a non-final action or a *Quayle* action.
(Examiner: For **FINAL** actions, please use PTOL-326.)

The objective of the accelerated examination program is to complete the examination of an application within twelve months from the filing date of the application. Any reply must be filed electronically via EFS-Web so that the papers will be expeditiously processed and considered. If the reply is not filed electronically via EFS-Web, the final disposition of the application may occur later than twelve months from the filing of the application.

Status

1)☒ Responsive to communication(s) filed on *03 July 2006*.

2)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

3)☒ Claim(s) *1-11 and 14-59* is/are pending in the application.
3a) Of the above claim(s) _____ is/are withdrawn from consideration.

4)☐ Claim(s) _____ is/are allowed.

5)☒ Claim(s) *1-11 and 14-59* is/are rejected.

6)☐ Claim(s) _____ is/are objected to.

7)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

8)☐ The specification is objected to by the Examiner.

9)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

10)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

11)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 117-146 been renumbered claims 30-59.

Claim Rejections - 35 USC § 112

2. Claims 30-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 30, line 7, the phrase "can give rise" is vague and indefinite.

Regarding claim 38, line 9, "said large area film structure" lacks antecedent basis.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 5, 20, 23, 30-32, 38, 39, 46-49, 53 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US 4,823,908).

Regarding claims 1, 5, 30-32, 38, 39, 53 and 54, Tanaka discloses a method for generating parametric audio output. The claimed electro acoustical transducer film diaphragm reads on the piezo vibrator in Tanaka because a film is being defined as a thin layer by dictionary. As shown in various figures in Tanaka, the piezo vibrator has a thin layer. As shown in various figures in Tanaka, the complete dimension (col. 7, line 8; 130x100mm) of the film is being continuous (all transducers are being placed next to each other without any gap between them) over a length of at least ten wavelengths of the electrical signal at its lowest frequency value.

Regarding claims 20 and 23, Tanaka further shows the support structure (12,13).

Regarding claims 46-49, Tanaka shows the beam in Fig. 2.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 2, 4, 7, 21,24, 26-29, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Schindel et al (US 5,287,331).

Regarding claims 2, 7 and 21, Tanaka fails to explicitly show an electrostatic transducer. Tanaka teaches an ultrasonic generator using a piezoelectric vibrator that any specify design of the ultrasonic transducer could be used without generating any unexpected result.

Schindel et al (hereafter Schindel) teaches how to use a piezoelectric film (col. 3, lines 67-68) electrostatic transducer with a backplate (1) for generating ultrasonic

signals. Thus, it would have been obvious to one of ordinary skill in the art to modify Tanaka in view of Schindel by using the piezoelectric film electrostatic transducer in order to generate the ultrasonic signals.

Regarding claims 4, 24, 33, Schindel teaches the thermal formed electro mechanical film diaphragm (col. 4, line 1).

Regarding claim 26 and 28, Schindel suggests the plastic film diaphragm (col. 3, line 66).

Regarding claim 27 and 29, although Schindel and Tanaka respectively fail to show diaphragm used PVDF, PVDF was a well known material for making piezoelectric film.

7. Claims 2, 3, 6, 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Sprenkels et al (US 4,908,805).

Regarding claims 3, 6, 22 and 25, Tanaka fails to explicitly show an electret transducer. Tanaka teaches an ultrasonic generator using a piezoelectric vibrator without specifying the particular structure. One skilled in the art would have expected that any specify design of the ultrasonic transducer could be used without generating any unexpected result. Sprenkels et al (hereafter Sprenkels) teaches how to use an electret transducer for generating ultrasonic signals. Thus, it would have been obvious to one of ordinary skill in the art to modify Tanaka in view of Sprenkels by using the electret transducer in order to generate the ultrasonic signals.

8. Claims 4, 8-11, 15, 16, 18, 19, 33-37, 40-45, 50-52 and 55-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Tibbetts et al (US 4,056,742).

Regarding claims 4, 8-11, 15,16, 33-37, 40-45, 50-52 and 55-59, Tanaka fails to show thermally formed film diaphragm transducer. Tanaka teaches an ultrasonic generator using a piezoelectric vibrator without specifying the particular structure. One skilled in the art would have expected that any specify design of the ultrasonic transducer could be used without generating any unexpected result. Tibbetts et al (hereafter Tibbetts) teaches how to use a piezoelectric film (col. 3, lines 67-68) transducer with a backplate (1) for generating ultrasonic signals. As shown in the drawings, Tibbetts suggested the curvature for both the film and the backplate. Although Tibbetts fails to show that the film is thermally formed, it was well known in the art to use heat to alter the shape of the film. Thus, it would have been obvious to one of ordinary skill in the art to modify Tanaka in view of Tibbetts by using the piezoelectric film transducer in order to generate the ultrasonic signals.

Regarding claim 18, although Tibbetts fails to explicitly show the distance between peak to trough is one-half wavelength, this is an inherent feature to ensure that the piezo film to operate properly.

Regarding claim 19, Tibbetts' diaphragm has concave dimples (s2, s4, s6) in closely spaced, side by side array.

9. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Sakagami et al (US 4,784,915).

Regarding claims 4 and 17, Tanaka fails to show thermally formed film diaphragm transducer. Tanaka teaches an ultrasonic generator using a piezoelectric vibrator without specifying the particular structure. One skilled in the art would have expected that any specify design of the ultrasonic transducer could be used without generating any unexpected result.

Sakagami et al (hereafter Sakagami) teaches how to use a piezoelectric film (col. 6, lines 27-35) transducer with a backplate (2) for generating ultrasonic signals. As shown in col. 6, Sakagami suggested that the spacing between the piezo film and the backplate is quarter wavelength. Thus, it would have been obvious to one of ordinary skill in the art to modify Tanaka in view of Sakagami by using the piezoelectric film transducer in order to generate the ultrasonic signals.

Double Patenting

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1, 20, 30, 38, 46 and 53 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 28 of copending Application No. 10/923,295 in view of Tanaka et al (US 4,823,908).

This is a provisional obviousness-type double patenting rejection.

Claim 28 of copending Application No. 10/923,295 fails to show the step of generating at least one of a modulated ultrasonic carrier signal and at least two ultrasonic signals having a different in frequency value which falls within an audio frequency range. However, this was a well known and necessary step of generating the ultrasonic signal applied to the parametric film speaker. Tanaka et al illustrate such concept in Fig. 2. Thus, it would have been obvious to one of ordinary skill in the art to modify claim 28 of copending Application No. 10/923,295 in view of Tanaka et al in order to obtain the ultrasonic signal to drive the film transducer.

12. Claims 1, 20, 30, 38, 46 and 53 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 32 of copending Application No. 10/923,288 in view of Tanaka et al (US 4,823,908).

This is a provisional obviousness-type double patenting rejection.

Claim 32 of copending Application No. 10/923,288 fails to show the step of generating at least one of a modulated ultrasonic carrier signal and at least two ultrasonic signals having a different in frequency value which falls within an audio frequency range. However, this was a well known and necessary step of generating the

ultrasonic signal applied to the parametric film speaker. Tanaka et al illustrate such concept in Fig. 2. Thus, it would have been obvious to one of ordinary skill in the art to modify claim 32 of copending Application No. 10/923,288 in view of Tanaka et al in order to obtain the ultrasonic signal to drive the film transducer.

Response to Arguments

13. Applicant's arguments filed 7/3/06 have been fully considered but they are not persuasive.

In response to applicant's argument that the amended claims require a dimension of the film being large compared to ultrasonic wavelengths, Tanaka discloses the dimension the complete structure the parametric transducer being 130x100 mm which is large compared to the ultrasonic wavelengths.

In response to applicant's argument that the amended claims require a single piece of film, such limitation has not been positively stated in each and every independent claim.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ping Lee
Primary Examiner
Art Unit 2615

pwl